

Application No. 10/633,893  
Amendment dated July 29, 2005  
Reply to Office Action of April 29, 2005

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

1. (Currently Amended) A glass composition comprising the following glass ingredients:

62.5 to 75 % by weight of SiO<sub>2</sub>;

1 to 16% [[20 %]] by weight of Al<sub>2</sub>O<sub>3</sub>;

an amount of B<sub>2</sub>O<sub>3</sub> sufficient to change the fusibility of the glass composition but not more than [[0 to]] 8 % by weight [[of B<sub>2</sub>O<sub>3</sub>]];

SiO<sub>2</sub> + Al<sub>2</sub>O<sub>3</sub> + B<sub>2</sub>O<sub>3</sub> accounting for 80.4 to 90 % by weight;

a total of 0 to [[20]]15% by weight, zero inclusive, of R<sub>2</sub>O compounds, where R = Li, Na, and K; and

a total of 0 to 15 % by weight, zero inclusive, of TiO<sub>2</sub> + ZrO<sub>2</sub> + Ln<sub>x</sub>O<sub>y</sub>, where Ln<sub>x</sub>O<sub>y</sub> represents at least one compound selected from the group consisting of lanthanoid metal oxides, Y<sub>2</sub>O<sub>3</sub>, Nb<sub>2</sub>O<sub>5</sub>, and Ta<sub>2</sub>O<sub>5</sub>.

2. (Original) A glass composition as claimed in claim 1, further comprising the following glass ingredients:

a total of 12 % or less by weight of one or two or more R'O compounds, where R' = Mg, Ca, Sr, Ba, and Zn.

3. (Currently Amended) A glass substrate formed of a glass composition comprising the following glass ingredients:

62.5 to 75 % by weight of SiO<sub>2</sub>;

1 to [[20]]16% by weight of Al<sub>2</sub>O<sub>3</sub>;

an amount of B<sub>2</sub>O<sub>3</sub> sufficient to change the fusibility of the glass substrate but not more than [[0 to]] 8 % by weight [[of B<sub>2</sub>O<sub>3</sub>]];

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$\text{SiO}_2 + \text{Al}_2\text{O}_3 + \text{B}_2\text{O}_3$  accounting for 80.4 to 90 % by weight;  
a total of 0 to 15 % [[20 %]] by weight, zero inclusive, of  $\text{R}_2\text{O}$  compounds, where  
 $\text{R} = \text{Li}, \text{Na}, \text{and K};$  and  
a total of 0 to 15 % by weight, zero inclusive, of  $\text{TiO}_2 + \text{ZrO}_2 + \text{Ln}_x\text{O}_y$ , where  
 $\text{Ln}_x\text{O}_y$  represents at least one compound selected from the group consisting of lanthanoid  
metal oxides,  $\text{Y}_2\text{O}_3$ ,  $\text{Nb}_2\text{O}_5$ , and  $\text{Ta}_2\text{O}_5$ .

4. (Original) A glass substrate as claimed in claim 3, further comprising the  
following glass ingredients:

a total of 12 % or less by weight of one or two or more  $\text{R}'\text{O}$  compounds, where  $\text{R}'$   
= Mg, Ca, Sr, Ba, and Zn.

5. (Original) A glass substrate as claimed in claim 3, wherein the glass  
substrate is not subjected to strengthening.

6. (Original) A glass substrate as claimed in claim 3, wherein the glass  
substrate is a substrate for a magnetic disk.

7. (Original) A glass substrate as claimed in claim 3, wherein the glass  
substrate has a fracture toughness  $K_c$  of  $0.90 \text{ MPa} / \text{m}^{1/2}$  or greater.

8. (Original) A glass substrate as claimed in claim 3, wherein the glass  
substrate has  $\text{SiO}_2$  elution A in a range of from 10 to 450 ppb per 2.5-inch disk.

9. (Original) A glass substrate as claimed in claim 3, wherein the glass  
substrate has a fracture toughness  $K_c$  of  $0.90 \text{ MPa} / \text{m}^{1/2}$  or greater, and has  $\text{SiO}_2$  elution A  
in a range of from 10 to 450 ppb per 2.5-inch disk, with a ratio of the  $\text{SiO}_2$  elution A to the  
fracture toughness  $K_c$  in a range of from 3 to 500.

10. (Original) A glass substrate as claimed in claim 3, wherein the glass  
substrate has alkali elution B of 350 ppb or lower per 2.5-inch disk.

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11. (Original) A glass substrate as claimed in claim 3, wherein the glass substrate is not subjected to strengthening, and has a specific elastic modulus  $E / \rho$  of 30 or higher.

12. (Original) A glass substrate as claimed in claim 3, wherein the glass substrate is not subjected to strengthening, and has a Vickers hardness Hv in a range of from 500 to 700.

13. (Original) A glass substrate as claimed in claim 3, wherein the glass substrate is not subjected to strengthening, and has a linear thermal expansion coefficient  $\alpha$  in a range of from  $40 \times 10^{-7} / ^\circ\text{C}$  to  $90 \times 10^{-7} / ^\circ\text{C}$ .

14. (Original) A glass substrate as claimed in claim 3, wherein the glass substrate exhibits a weight reduction factor lower than 8.0 % when kept in a melted state at 1 500 °C for 24 hours.

15. (Original) A glass substrate as claimed in claim 3, wherein the glass substrate has a glass transition temperature  $T_g$  of 600 °C or lower.

16. (Original) A glass substrate as claimed in claim 3, wherein the glass substrate has a liquid phase temperature  $T_L$  of 1 300 °C or lower.

17. (Original) A glass substrate as claimed in claim 3, wherein a temperature  $T_{\log \eta = 2}$  at which the glass substrate has a melt viscosity of  $\log \eta = 2$  is 1 550 °C or lower.

18. (Original) A magnetic disk substrate comprising a glass substrate as claimed in claim 3 and a magnetic film formed on at least one surface thereof.

19. (Original) A magnetic disk substrate as claimed in claim 18, wherein the glass substrate further comprises the following glass ingredients:

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a total of 12 % or less by weight of one or two or more R'O compounds, where R' = Mg, Ca, Sr, Ba, and Zn.

20. (Original) A magnetic disk substrate as claimed in claim 18, wherein the glass substrate is not subjected to strengthening.

21. (Original) A magnetic disk substrate as claimed in claim 18, wherein the glass substrate has a fracture toughness Kc of 0.90 MPa / m<sup>1/2</sup> or greater.

22. (Original) A magnetic disk substrate as claimed in claim 18, wherein the glass substrate has SiO<sub>2</sub> elution A in a range of from 10 to 450 ppb per 2.5-inch disk.

23. (Original) A magnetic disk substrate as claimed in claim 18, wherein the glass substrate has a fracture toughness Kc of 0.90 MPa / m<sup>1/2</sup> or greater, and has SiO<sub>2</sub> elution A in a range of from 10 to 450 ppb per 2.5-inch disk, with a ratio of the SiO<sub>2</sub> elution A to the fracture toughness Kc in a range of from 3 to 500.

24. (Original) A magnetic disk substrate as claimed in claim 18, wherein the glass substrate has alkali elution B of 350 ppb or lower per 2.5-inch disk.

25. (Original) A magnetic disk substrate as claimed in claim 18, wherein the glass substrate is not subjected to strengthening, and has a specific elastic modulus E / ρ of 30 or higher.

26. (Original) A magnetic disk substrate as claimed in claim 18, wherein the glass substrate is not subjected to strengthening, and has a Vickers hardness Hv in a range of from 500 to 700.

27. (Original) A magnetic disk substrate as claimed in claim 18, wherein the glass substrate is not subjected to strengthening, and has a linear thermal expansion coefficient α in a range of from  $40 \times 10^{-7}$  / °C to  $90 \times 10^{-7}$  / °C.

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28. (Original) A magnetic disk substrate as claimed in claim 18, wherein the glass substrate exhibits a weight reduction factor lower than 8.0 % when kept in a melted state at 1 500 °C for 24 hours.

29. (Original) A magnetic disk substrate as claimed in claim 18, wherein the glass substrate has a glass transition temperature T<sub>g</sub> of 600 °C or lower.

30. (Original) A magnetic disk substrate as claimed in claim 18, wherein the glass substrate has a liquid phase temperature T<sub>L</sub> of 1 300 °C or lower.

31. (Original) A magnetic disk substrate as claimed in claim 18, wherein a temperature T<sub>log η = 2</sub> at which the glass substrate has a melt viscosity of log η = 2 is 1 550 °C or lower.